

# Method and Application of Survey and Analysis of National R&D Programs in Korea



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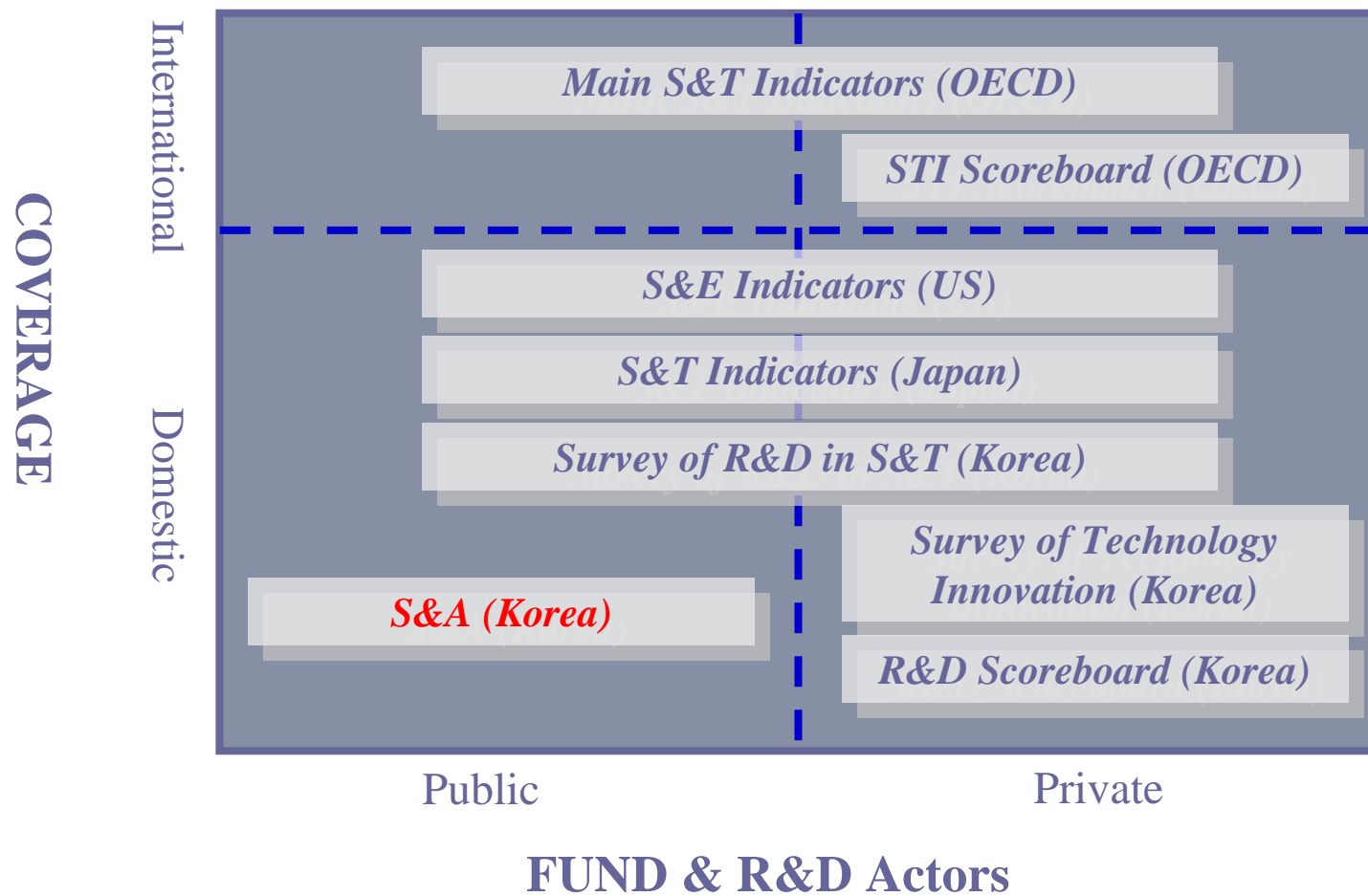
**1. Introduction: How S&A works**

**2. Data: Summary of 2007 S&A results**

**3. Future Prospects**

- ❖ Based on **'Science and Technology Framework Law'**, KISTEP has conducted Survey & Analysis of government R&D programs since 1999.
  
- ❖ **Purpose of Survey & Analysis**
  - To produce **basic statistics for government R&D** programs
  - To provide **reference for government R&D program evaluation and R&D budget coordination**
  - To apply in the government R&D policy making for the future

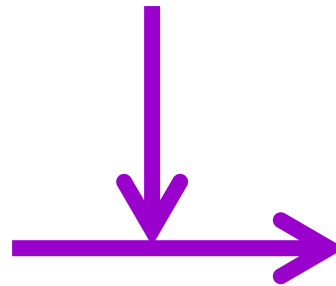
# Relation to others



# S&A Subject(2007)

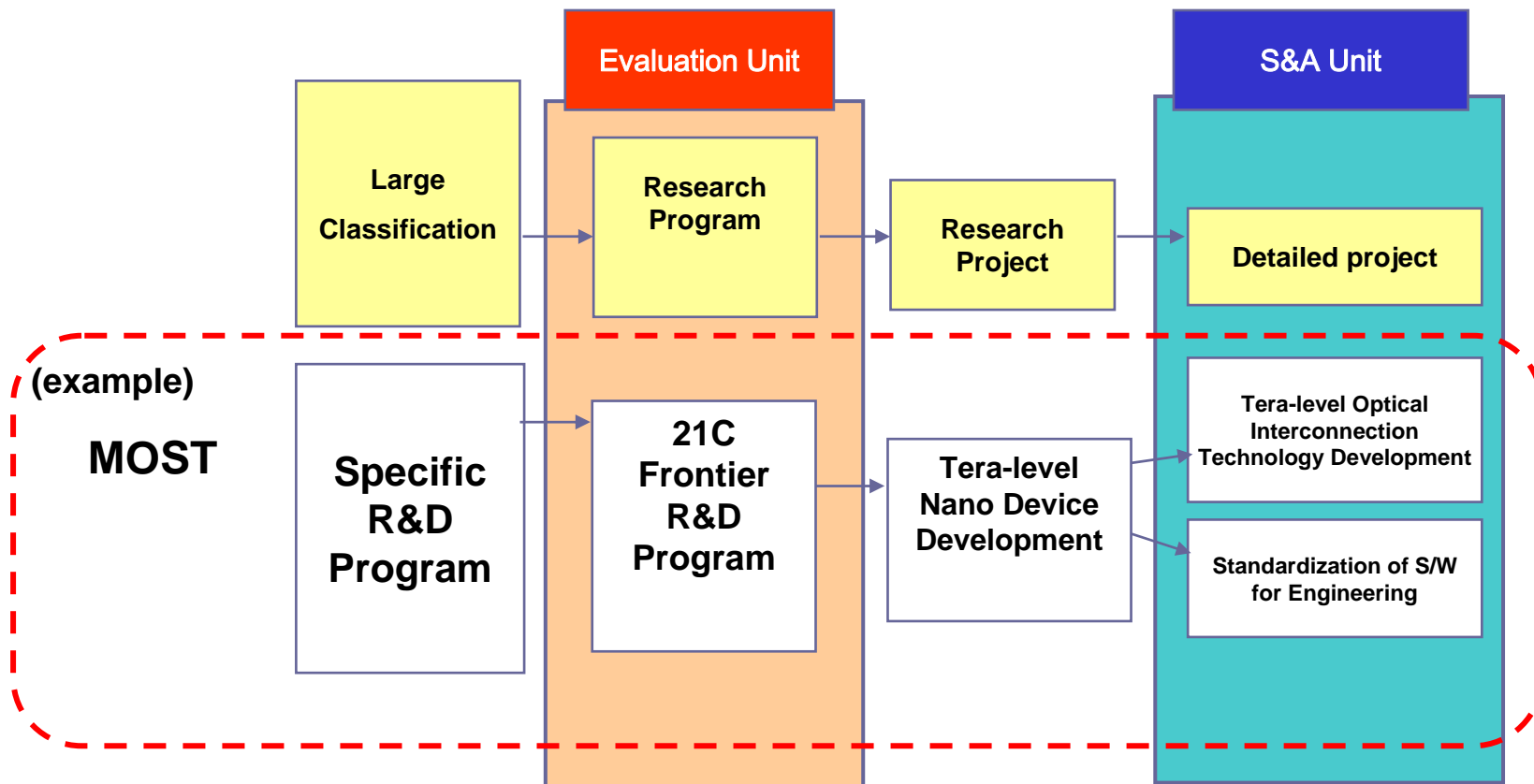
- (+) Promoting Information and Communication Fund
- (+) Atomic Energy R&D Fund
- (+) Electric Power Industry Fund
- (+) S&T Promotion Fund
- (+) Promoting Health Fund

Gov't R&D Budget  
(7.2283 trillion won)

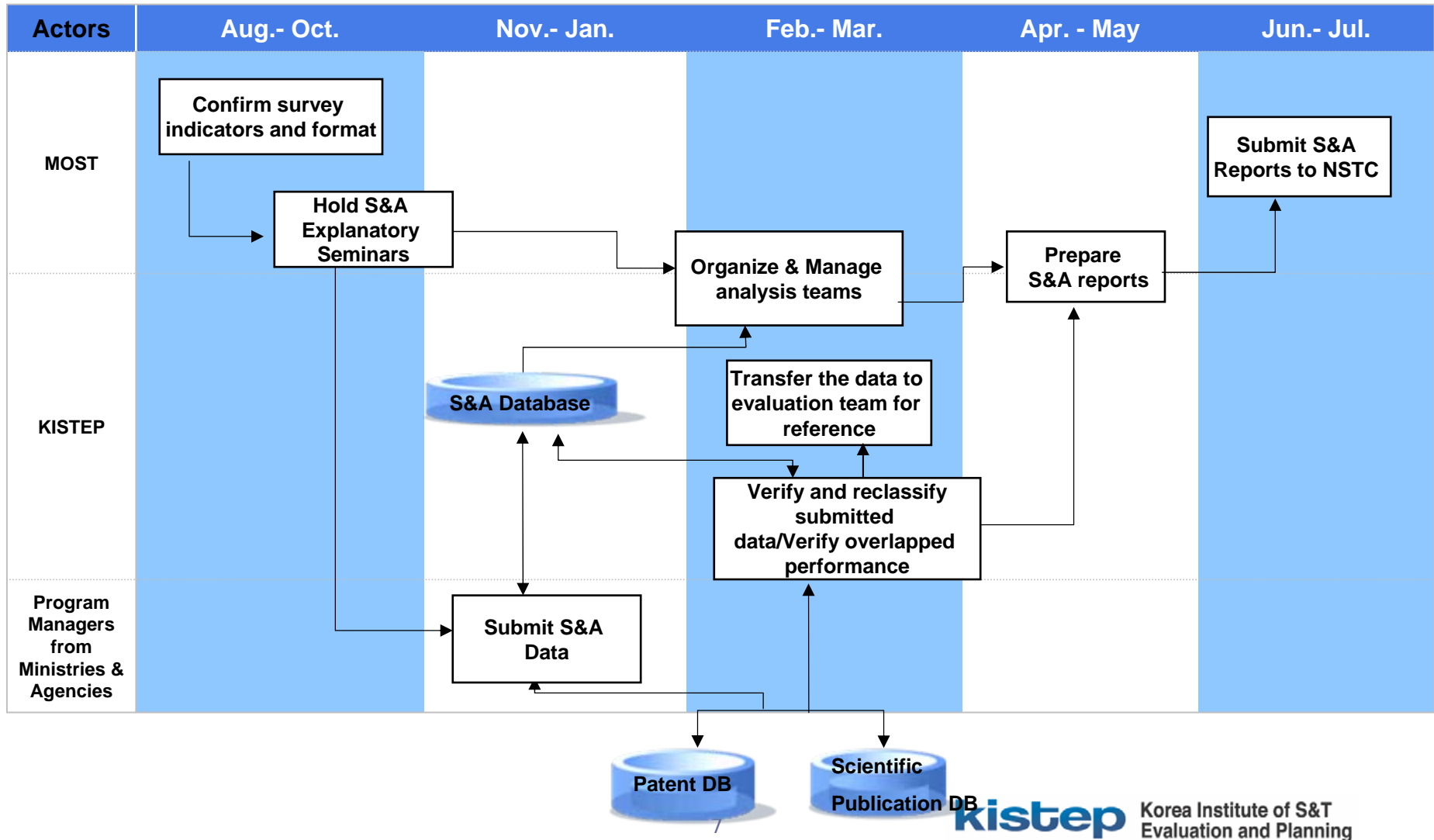


S&A subject  
(8.7639 trillion won)  
≈ \$ 8.76 billion

# R&D Program Classification System



# S&A Procedure



# Survey indicators I: General Information

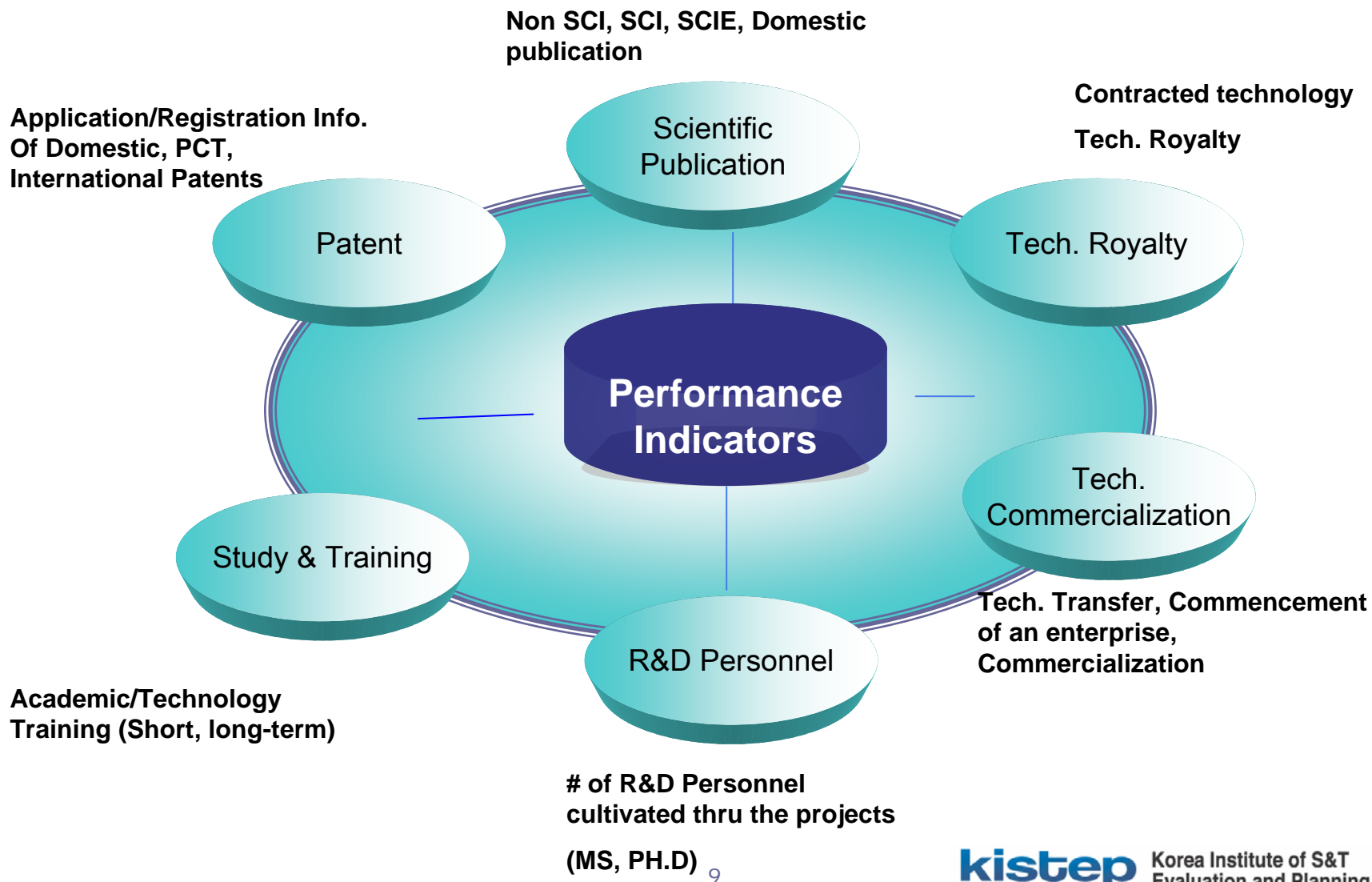
- Industrial production & technology, Protection & improvement of human health, Defense, etc.

- Industry, Academic, Research institute, etc.





# Survey Indicators 2: Performance



# Analysis teams

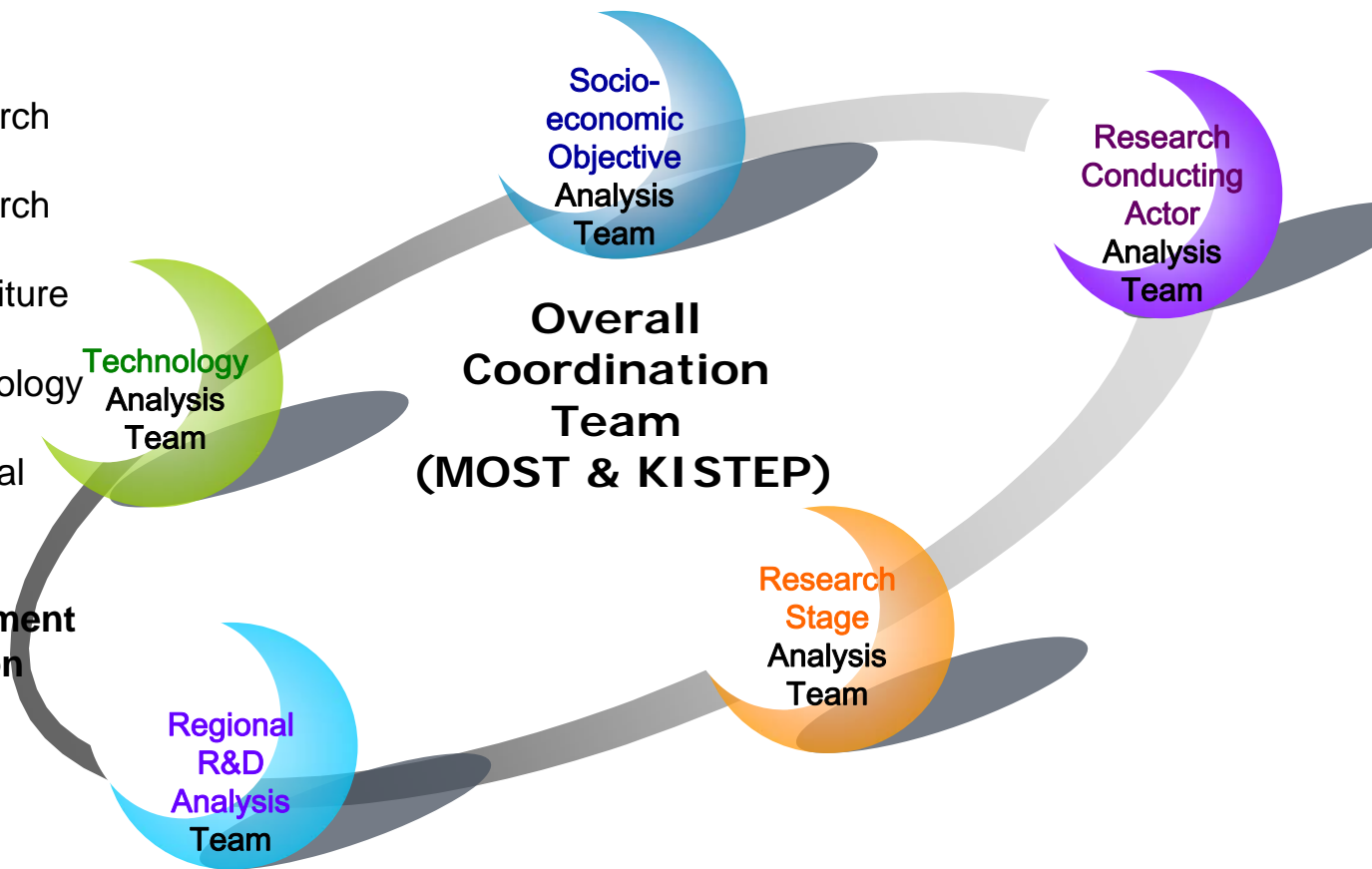
► **General Analysis**

- R&D Expenditure by Socio-economic objective
- R&D Expenditure by Research stage
- R&D Expenditure by Research conducting actor
- Distribution of R&D Expenditure by region
- R&D Expenditure by Technology areas
- R&D Personnel, International cooperation, etc.

► **International Comparison**

► **Degree of Policy Achievement**

► **Inducing Policy Implication**



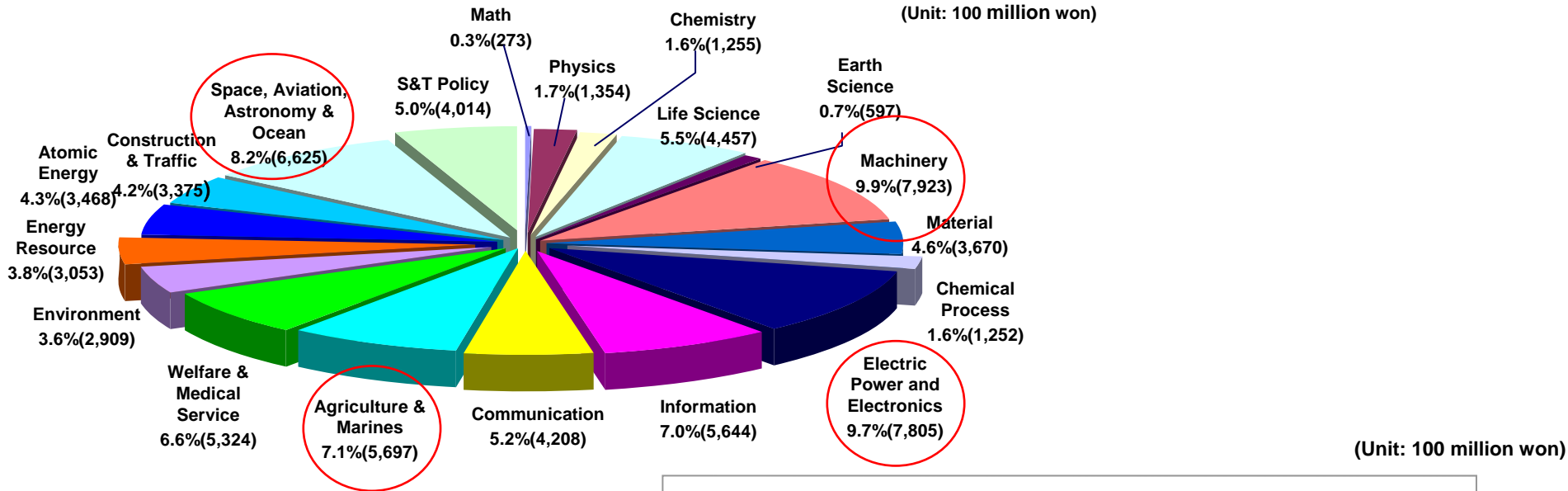
## S&amp;A Results(2007)

## Gov't R&amp;D investment trend subject to S&amp;A (2000~2006)

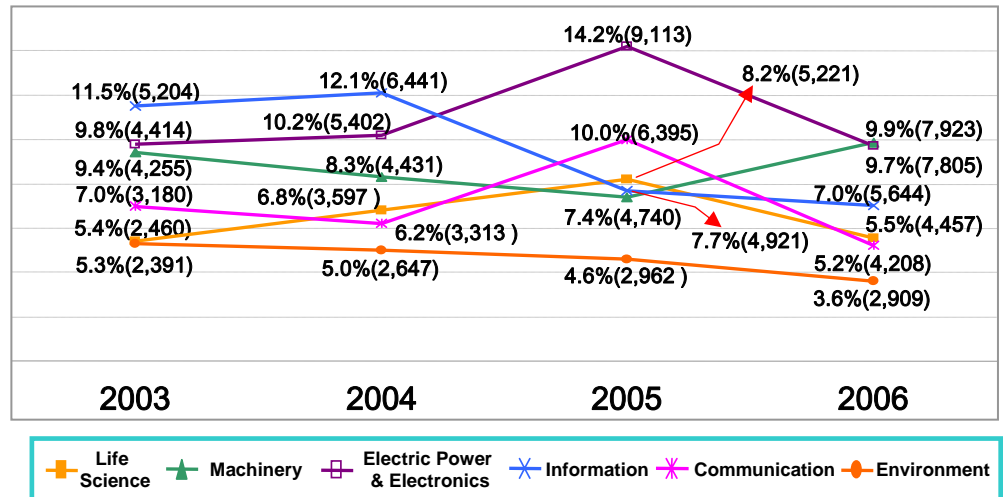
(UNIT : 100 Million won)

Classification		2000	2001	2002	2003	2004	2005	2006	Average Yearly Increase (%)
Total Government R&D Budget		41,974	57,340	61,416	65,154	70,827	77,996	89,096	13.4
S&A Subject	Investment Amount	30,746	45,283	46,984	49,036	59,847	77,904	87,639	19.1
	No. of Research programs	204	217	211	266	314	390	357	9.8
	No. of Detailed projects	16,812	21,237	22,921	25,794	26,514	30,425	31,967	

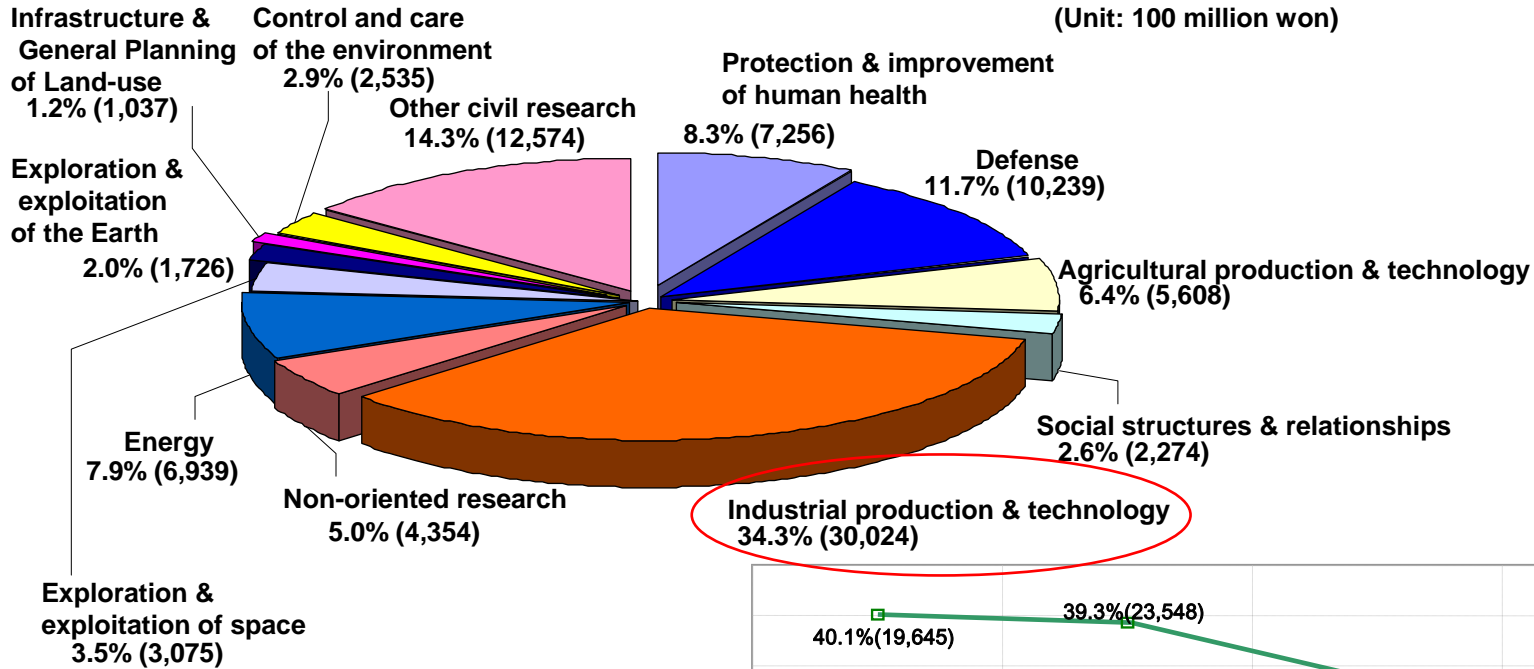
# S&T Standard Classification



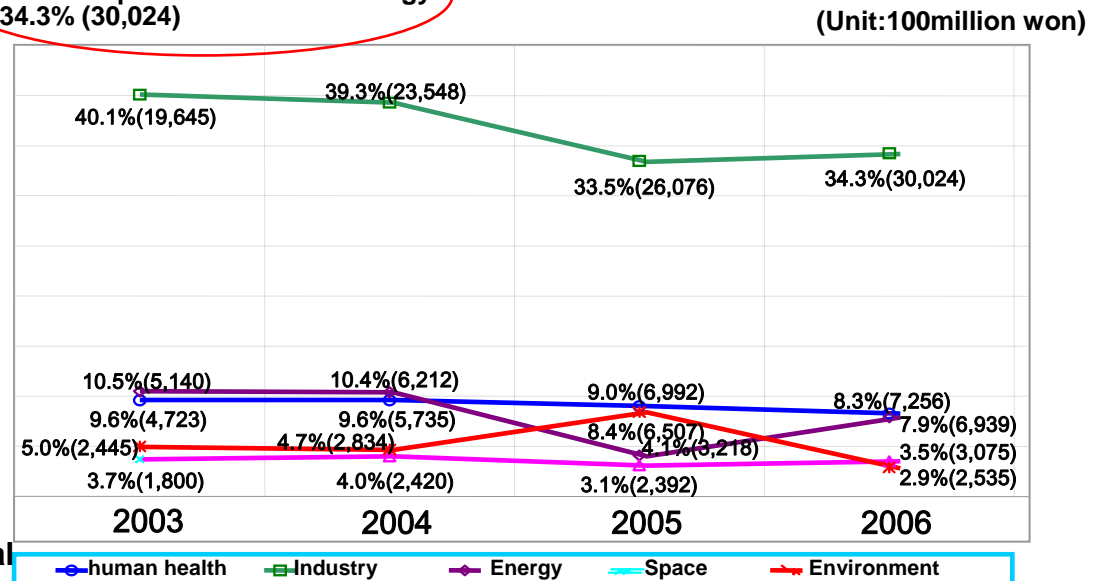
- Machinery(9.9%) ▶ Electric power & Electronics(9.7%) ▶ Space, Aviation, Astronomy & Ocean(8.2%) ▶ Agriculture&Marines(7.1%)
- Compared to 2005, increasing rates in Machinery(67.1%), Construction & Traffic(60.5%), S&T Policy(58.4%), Space, Aviation, Astronomy & Ocean(56.8%) are prominent.



# Socio-economic objectives



Industrial production & technology 34.3% (30,024)



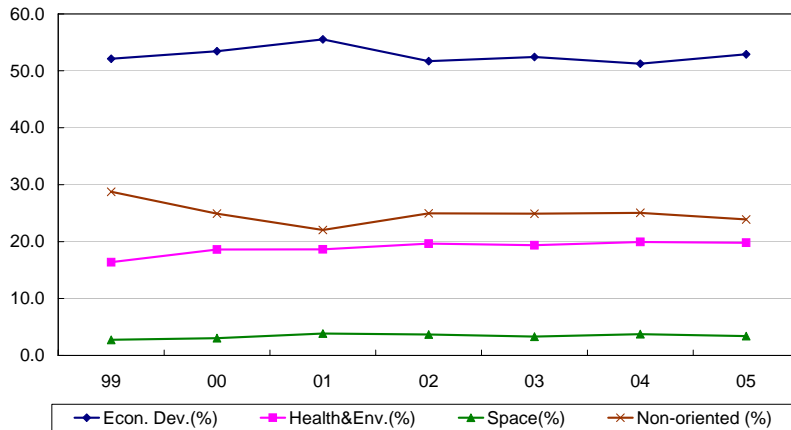
- Industrial production & technology takes the largest portion(34.3%).
- Increasing rates compared to 2005 for Exploration & exploitation of the Earth and Exploration & exploitation of Space are the highest.

Classification based on OECD's Frascati Manual

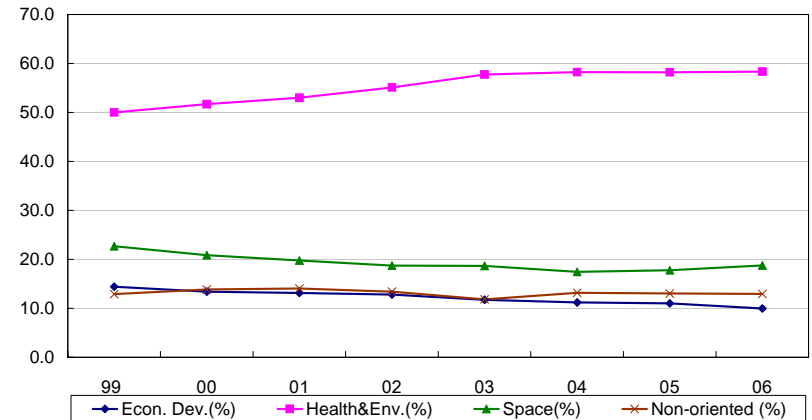
# Socio-economic objectives (cont.)

## International Comparison

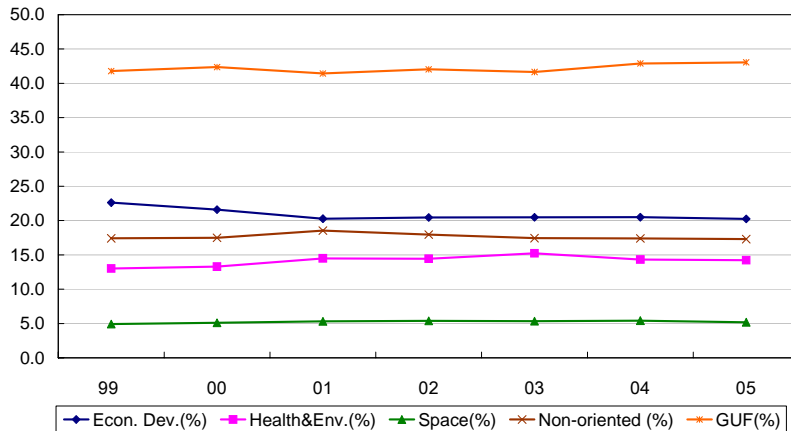
Korea



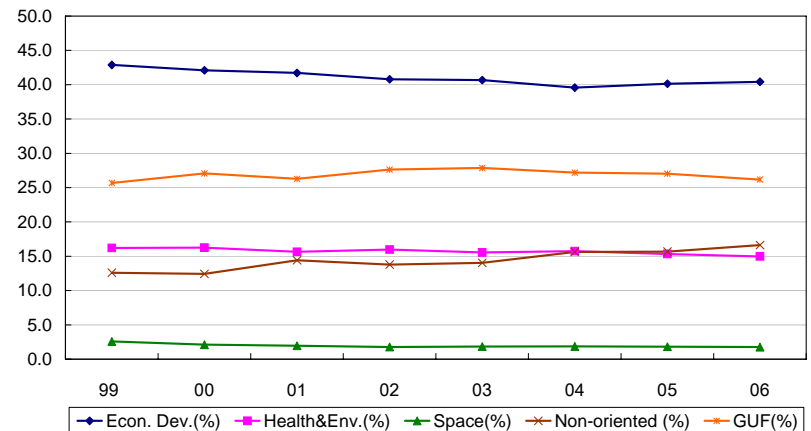
U.S.



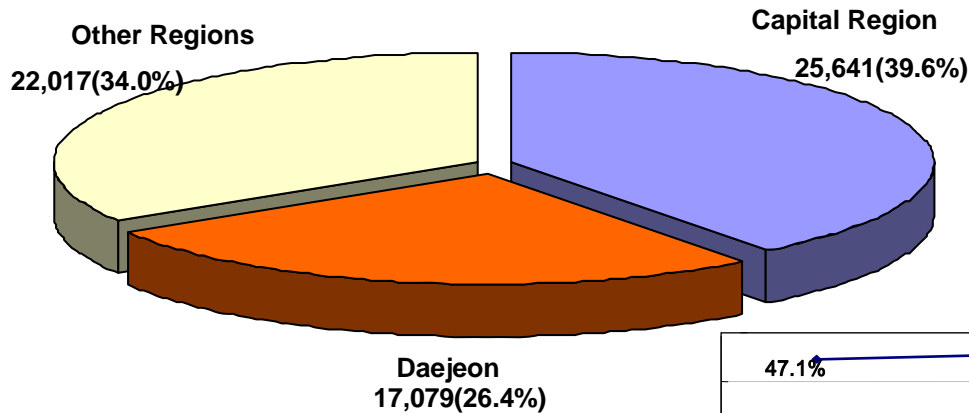
Germany



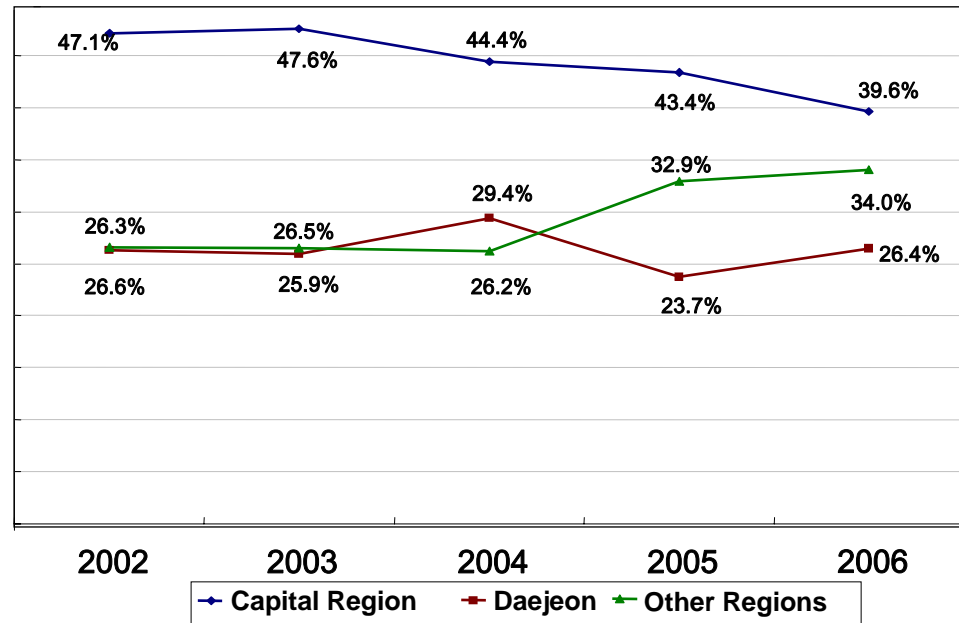
Finland



(Unit: 100 million won)



- Capital Region:  
43.4% (2005) → 39.6%(2006) 3.8%p↓
- Daejeon:  
23.7% (2005) → 26.4%(2006) 2.7%p↑
- Other Regions:  
32.9% (2005)→ 34.0% (2006) 1.1%p↑



Unit of region is provinces and larger metropolitan areas.

## Achievement of policy objectives

### [Policy Objective]

- **Expand regional R&D to strengthen the regional technology innovation capability**
  - **Goal : Increase the investment portion in total government R&D of the regional areas to 36.2% by 2006.**
    - \***(2003) 27.0→(2004) 32.1 →(2005) 33.7 →(2006) 36.2**

### <Result of 2007 S&A>

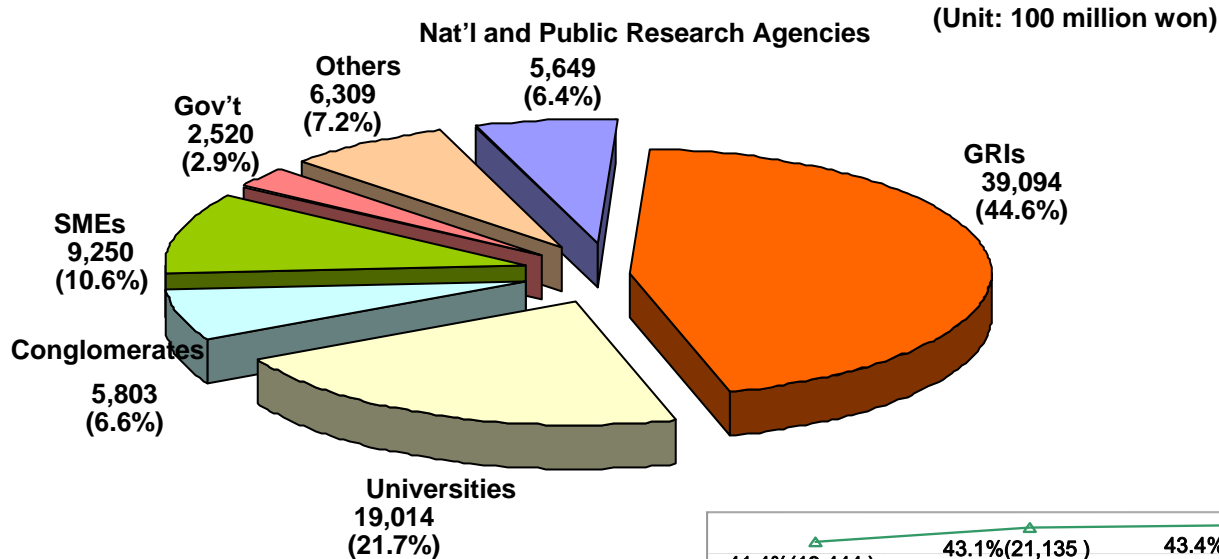
- The portion of Regional R&D investment in 2006 was **34.0%**, which was increased by 4.9%, but still less than the goal (**36.2%**).
- **Regional areas' dependency on local government is very high** compared to capital region and Daejeon.

### <Policy implication>

- Considering local governments' poor financial status, it is necessary to coordinate a **matching fund strategy** in government R&D investment.

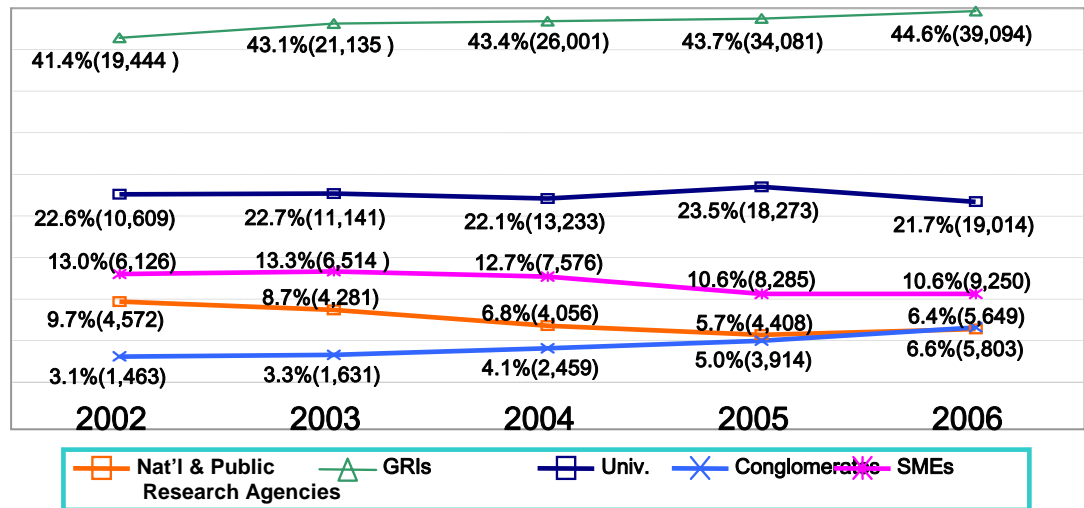


# Research conducting actor



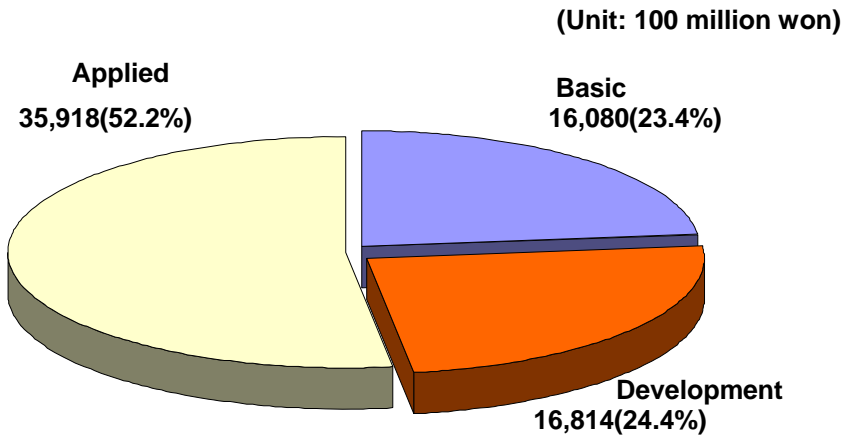
(Unit: 100 million won)

- **GRIs** takes the largest portion of gov'n't R&D(44.6%)
- For last 5yrs, GRIs has the highest increasing amount of investment and **Conglomerate** has the highest increasing rate in investment.



▪ GRIs: Government-supported Research Institutes

# Research Stage

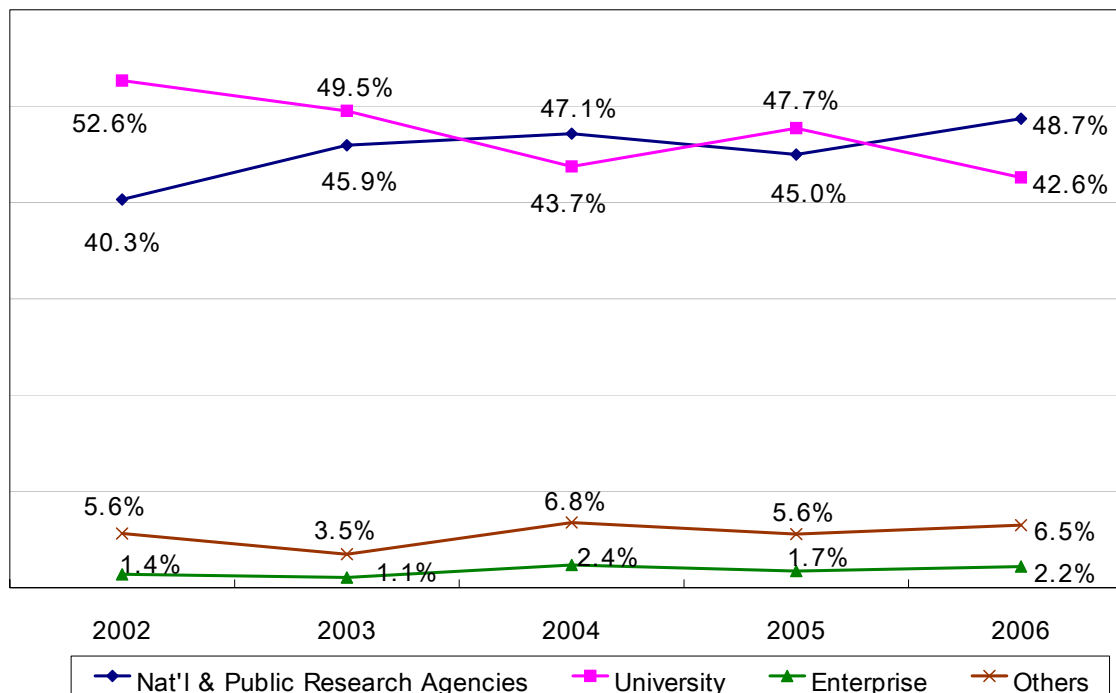


- Basic(23.4%), Applied(24.4%), Development(52.2%)
- Basic Research : 23.0%(2005) → 23.4%(2006)
- Applied Research: 24.8%(2005) → 24.4%(2006)
- Development Research: 52.2% (2005,2006)

Classification		Basic	Applied	Development
Including Defense	Korea(2006)	23.4	24.4	52.2
	U.S(2005)	25.2	26.1	48.6
	U.K(2005)	25.6	42.6	31.8
Excluding Defense	Korea(2006)	24.2	25.6	50.2
	U.S(2005)	45.9	43.0	11.1
	U.K(2005)	42.5	54.4	3.1

# Cross table Analysis

## Research conducting actor – Basic Research



- ❖ Nat'l & Public Research Agencies (including GRIs) ▶ University ▶ Others ▶ Enterprise (SMEs + Conglomerates)
- ❖ Basic Research by university is decreasing from 47.7% in 2005 to 42.6% in 2006.

# Plans for Following Years

## ❖ 2008 S&A

- Nov. 13<sup>th</sup>, 15<sup>th</sup> : Hold S&A explanatory/Demonstration seminars.
- Nov. 19<sup>th</sup> : Open the NTIS system for S&A data submission.
- ~ Middle of Jan: S&A data submission ends.
- Feb. ~ Mar. : After verification and reclassification of submitted data, transfer the data for program evaluation.
- Apr. ~ Aug: Prepare the S&A reports and submit it to NSTC.

## ❖ System improvement plan for 2009 S&A

- Modify and develop the S&A indicators
- From 2009 S&A, data submission starts from March, 2008 to Jan. 2009.
  - ▶ S&A data submission becomes real-time inputting system.

# S&A Challenges

- ❖ **Impracticality of some survey indicators**
  - ▶ Because of rapidly changing S&T environment, some indicators which were built in the past are less useful.
  
- ❖ **Focusing mainly on the statistical & quantitative analysis**
  - ▶ Since the characteristics of government R&D are various and complex, it is hard to perform qualitative analysis for each R&D program with same measure.
  
- ❖ **Limit of data verification for performance indicators**
  - ▶ For some performance indicators, it is hard to decide what will be the objective method for data verification.
  
- ❖ **General users' difficulty in applying survey data from DB system**
  - ▶ DB system was designed as provider-centered.
  - ▶ This will be somewhat fixed as NTIS Database opens in this month.

# S&A Development Plan



# Thank You !

For Further Information

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